Trends in incidence and social gradient of thyroid cancer in adolescent and young adult females: An analysis of the national cancer registration data in England, 1985-2016

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Background
Thyroid cancer is four-times more common in adolescent and young adult females (AYA, aged 15-39 years). The incidence of thyroid cancer has been increasing in young people over the past few decades in several western countries and this has been partly attributed to the concurrent increasing prevalence of overweight/obesity. The objective of this study was to determine the trends in incidence and social gradient of thyroid cancer in AYA females in England.

Method
Population-based national cancer registration data for England, 1985-2016 (obtained from Public Health England Office for Data Release), were used to calculate the average annual incidence rates of thyroid cancer (ICD-10 code: C73) by five-year age groups and time periods. Index of Multiple Deprivation (IMD) quintiles (2012-16) were examined to determine the social gradient of thyroid cancer.

Results
During the 32-year period, a total of 10,133 cases of thyroid cancer in AYA females were registered in England. The average annual number of cases increased by 421% - from 129/year in 1985-89 to 672/year in 2015-16. The average annual incidence rate (per 100,000) increased from 1.5 in 1985-89 to 7.6 in 2015-16 (+407%). There was a positive correlation with the level of deprivation (as defined by the IMD quintiles) – the highest proportion (25.3%) of cases were diagnosed in females from the most deprived areas compared to 15.9% from the least deprived areas.

Conclusion
There has been a substantial increase in the incidence of thyroid cancer in AYA females in England over the last four decades. The study provides some support to the notion that some of this increase may be due to the increasing prevalence of overweight/obesity. Analytical studies are needed to define this association and investigate other environmental and potentially preventable causes of thyroid cancer (e.g. radiation exposure from dental X-rays).

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